

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. **(Previously Presented)** A method of forming an optical fiber preform, the method comprising:
  - providing a consolidated glass preform precursor body having an outer surface;
  - depositing a layer of silica soot onto the outer surface of the consolidated glass preform precursor body to form a composite preform comprised of a consolidated glass portion and a silica soot portion; and
  - in a deuterium-exposing step, exposing the composite preform to an atmosphere containing a concentration of  $D_2$  or  $D_2O$  or a mixture of  $D_2$  or  $D_2O$  for a time and at a temperature sufficient to cause the  $D_2$  or  $D_2O$  to penetrate the consolidated glass portion without entirely pervading the consolidated glass portion.
2. **(Previously Presented)** The method of Claim 1 wherein the depositing step further comprises forming a hydroxyl species in the consolidated glass preform precursor body.
3. **(Previously Presented)** The method of Claim 2 wherein at least a portion of the hydroxyl species in the consolidated glass preform precursor body is exchanged with at least a portion of the  $D_2$  or  $D_2O$  in the consolidated glass portion to form OD in the consolidated glass portion.
4. **(Previously Presented)** The method of Claim 1 further comprising, after the depositing step, exposing the composite preform to a dehydration atmosphere comprising one or more of  $Cl_2$ ,  $CCl_2$ ,  $SOCl_2$ ,  $SiCl_4$ ,  $GeCl_4$ , and  $POCl_3$ .
5. **(Previously Presented)** The method of Claim 4 wherein the dehydration atmosphere further comprises an inert gas.

6. **(Previously Presented)** The method of Claim 1 wherein, the composite preform is exposed to a dehydration atmosphere prior to the deuterium-exposing step, wherein the dehydration atmosphere comprises one or more of  $\text{Cl}_2$ ,  $\text{CCl}_2$ ,  $\text{SOCl}_2$ ,  $\text{SiCl}_4$ ,  $\text{GeCl}_4$ , and  $\text{POCl}_3$ .
7. **(Original)** The method of Claim 4 wherein the composite preform is exposed to a purge atmosphere comprising an inert gas prior to the deuterium-exposing step.
8. **(Previously Presented)** The method of Claim 4 wherein the composite preform is exposed to a dehydration atmosphere comprising one or more of  $\text{Cl}_2$ ,  $\text{CCl}_2$ ,  $\text{SOCl}_2$ ,  $\text{SiCl}_4$ ,  $\text{GeCl}_4$ , and  $\text{POCl}_3$ , and then the composite preform is exposed to a purge atmosphere comprising an inert gas, prior to the deuterium-exposing step.
9. **(Original)** The method of Claim 4 wherein the composite preform is exposed to a purge atmosphere comprising an inert gas after the deuterium-exposing step.
10. **(Previously Presented)** The method of Claim 4 wherein the composite preform is exposed to the dehydration atmosphere after the deuterium-exposing step.
11. **(Previously Presented)** The method of Claim 4 wherein, after the deuterium-exposing step, the composite preform is exposed to a purge atmosphere comprising an inert gas, and then the composite preform is exposed to the dehydration atmosphere.
12. **(Previously Presented)** The method of Claim 1 further comprising consolidating the silica soot portion to form a second glass portion whereby the composite preform is transformed into a second consolidated glass preform precursor body.
13. **(Previously Presented)** The method of Claim 12 further comprising depositing an additional layer of silica soot onto the second consolidated glass preform precursor body to form a second composite preform and then exposing the second composite preform to  $\text{D}_2$  or  $\text{D}_2\text{O}$ .

14. **(Previously Presented)** The method of Claim 13 further comprising heating and drawing the second consolidated glass preform precursor body to a reduced diameter prior to depositing the additional layer of silica soot thereon.

15. **(Canceled)**

16. **(Previously Presented)** The method of Claim 1 wherein the consolidated glass preform precursor body is generally cylindrical about a centerline axis, wherein at least a portion of the consolidated glass preform precursor body extends to an outer radius RC1 measured from the centerline axis, and wherein the concentration of any OD present in the consolidated glass preform precursor body at all radii less than about 0.25 RC1 is less than 0.1 ppm.

17. **(Previously Presented)** The method of Claim 2 wherein less than 0.1 ppm OD is formed in the consolidated glass portion at all radii less than about one-fourth the outer radius of the consolidated glass preform precursor body.

18. **(Previously Presented)** The method of Claim 16 wherein the OD concentration at all radii less than about 0.5 RC1 is less than 0.1 ppm.

19. **(Previously Presented)** The method of Claim 16 wherein the OD concentration at all radii less than about 0.75 RC1 is less than 0.1 ppm.

20. **(Canceled)**